

CLAIMS:

1. A gas purge valve comprising a housing fitted with an inlet port being in flow communication with a liquid outlet port, and at least one gas outlet member; a gas flow barrier associated with the liquid outlet port; a float member displaceable
5 within the housing between a first position adjacent the inlet port and a second position adjacent the gas outlet; said at least one gas outlet fitted with an inlet prohibiting valve, and being sealingly engageable by a flexible sealing member articulated to the float member, whereby buoyant displacement of the float member into the second position entails sealing of the at least one gas outlet by the flexible
10 sealing member.
2. A gas purge valve according to Claim 1, wherein the gas flow barrier is a normally closed one-way valve, which responsive to a pressure exceeding a predetermined magnitude admits liquid flow in direction from the inlet port towards the liquid outlet port.
- 15 3. A gas purge valve according to Claim 2, wherein the one way valve is spring biased into its closed position.
4. A gas purge valve according to Claim 1, wherein the inlet port and the liquid outlet port are integrally formed with the housing.
5. A gas purge valve according to Claim 1, wherein the liquid outlet port is
20 coupled to a liquid flow-meter.
6. A gas purge valve according to Claim 2, wherein the predetermined magnitude pressure for displacing the one way valve into its open position is in the range of about 0.1 - 0.3 atmospheres.
7. A gas purge valve according to Claim 1, wherein the housing is fitted with
25 a top cap whereby the gas outlet is tamper-proof.
8. A gas purge valve according to Claim 1, wherein a liquid flow path extends between the inlet port and the outlet port.

9. A gas purge valve according to Claim 8, wherein the housing is made of plastic material, and where the flow path extends through a uniform metallic coupling member.
10. A gas purge valve according to Claim 9, wherein the metallic coupling
5 member is formed with an aperture extending in register with a corresponding inlet duct formed in the housing.
11. A gas purge valve according to Claim 1, wherein the housing is formed with a user-interruptible arrangement for inactivating the valve.
12. A gas purge valve according to Claim 11, wherein the housing is formed
10 with an inlet duct extending intermediate the inlet port and a float receiving space of the housing; where flow through said inlet duct is user-interruptible to thereby inactivate the valve.
13. A gas purge valve according to Claim 12, wherein inactivating the valve does not interrupt fluid flow between the inlet port and the outlet port.
14. A gas purge valve according to Claim 12, wherein the inlet duct is formed
15 with a wall breakable by a tool serving also for blocking flow through said inlet duct.
15. A gas purge valve according to Claim 14, wherein the wall of the inlet duct is formed with a stress concentration notch, and where the tool is a chisel-like
20 article formed with a front end for breaking the wall at said notch and said tool has a flat surface portion for sealing engagement of the inlet duct.
16. A gas purge valve according to Claim 12, wherein the user-interruptible process is irreversible.
17. A gas purge valve according to Claim 11, wherein the gas outlets open into
25 an outlet chamber formed under a sealing top cap formed with one or more discharge openings; corresponding one or more sealing members are provided within the outlet chamber where the valve can be inactivated by aligning the one or more discharge openings with the one or more sealing members so as to seal the discharge openings.

18. A gas purge valve according to Claim 17, wherein the top cap is sealingly rotatable over the housing between an open, activated position and a closed, inactivated position and the one or more discharge openings are sealingly engaged by the corresponding one or more sealing members.
19. A gas purge valve according to Claim 17, wherein the discharge opening formed in the top cap is fitted with an outlet grid.
20. A gas purge valve according to Claim 17, wherein the discharge opening formed in the top cap is fitted with an outlet tube section.
21. A gas purge valve according to Claim 17, wherein the top cap is
10 snappingly secured over the housing and is sealingly rotatable thereabout.
22. A gas purge valve according to Claim 17, wherein the top cap secures the gas outlet member.
23. A gas purge valve according to Claim 1, wherein the housing comprises at least a pair of gas outlet ports, each bounded by a sealing seat sealingly engageable
15 by a corresponding sealing portion of the sealing member.
24. A gas purge valve according to Claim 23, wherein at least one of the gas outlet ports comprises a first outlet aperture and a second outlet aperture bounded by first and second valve seatings, respectively; and where displacement of the float member from the second position to the first position, progressively detaches
20 the sealing member initially from the first valve seating so as to open initially said first outlet aperture and subsequently from said second valve seating so as to open subsequently said second outlet aperture, whilst buoyant displacement of said float member from said first position to said second position allows for said float member to become sealingly biased against said seatings.
25. A gas purge valve according to Claim 24, wherein the first outlet aperture is a continuation portion of the second outlet aperture.
26. A gas purge valve according to Claim 24, wherein a first portion of the sealing member adapted to bear against the first valve seating is of lesser rigidity than a second portion adapted to bear against the second valve seating.

27. A gas purge valve according to Claim 26, wherein the second portion of the sealing member comprises a cushioned sealing portion engageable by a corresponding biasing portion of the float member biasing it into sealing engagement with the outlet valve seatings.
28. A gas purge valve according to Claim 27, wherein the cushioned sealing portion of the sealing member and the biasing portion of the float member are equally inclined with respect to an axis of displacement of the float member.
29. A gas purge valve according to Claim 27, wherein the cushioned sealing portion of the sealing member is formed with a bulge engageable by the
10 corresponding biasing portion of the float member, to thereby give rise to reactionary forces acting along a line normal to a sealing surface of the first portion of the sealing member.
30. A gas purge valve according to Claim 1, wherein the sealing member is articulated to a top portion the float member, whereby buoyant displacement of the
15 float member into its second position applies a combined pull/push force on the sealing member into sealing of the gas outlet.
31. A gas purge valve according to Claim 24, wherein one of the first portion of the sealing member and the corresponding second valve seating is indented with respect to the other one of said first portion of the sealing member and the
20 corresponding second valve seating, to thereby increase the effective sealing area.
32. A gas purge valve according to Claim 24, wherein the inlet prohibiting valve is a leaf-type valve bearing against an external sealing surface of the first outlet aperture and a second outlet aperture of the gas outlet port.
33. A gas purge valve according to Claim 1, wherein the housing is fitted at a
25 top portion thereof with a seating member formed with the at least one gas outlet opening.
34. A gas purge valve according to Claim 33, wherein the seating member is sealingly attached at a top portion of the housing.
35. A gas purge valve according to Claim 34, wherein the seating member
30 clampingly arrests respective ends of the sealing member to the housing.

36. A gas purge valve according to Claim 33, wherein the seating member is formed at an inner side thereof with at least one gas outlet seating, and at an outside surface thereof with at least one inlet prohibiting valve seating.
37. A gas purge valve according to Claim 36, wherein the inlet prohibiting
5 valve is a leaf-type valve bearing against an external seating surface of the seating member, corresponding with the at least one gas outlet seating.
38. A gas purge valve according to Claim 1, wherein the sealing member is formed with at least one first portion adapted to bear against a corresponding at least one first valve seating of the gas outlet, and at least one second portion of
10 greater rigidity adapted to bear against a corresponding at least one second valve seating of the gas outlet.
39. A gas purge valve according to Claim 38, wherein the sealing member is a strip-like member formed with an opening for engagement with a corresponding projection of the float member, at least one first sealing portion adjoining said
15 opening, and at least one second sealing portion.
40. A gas purge valve according to Claim 39, wherein the sealing member comprises two first sealing portions adjoining the opening, and two second sealing portions adjacent respective lateral edges of the sealing member.
41. A gas purge valve according to Claim 40, wherein the lateral edges of the
20 strip-like sealing member are clampingly secured to the housing.
42. A gas purge valve according to Claim 1, wherein a liquid flow path extends essentially vertically between the inlet port and the outlet port.
43. A gas purge valve according to Claim 1, wherein the liquid flow path extends through the housing.
44. A gas purge valve according to Claim 33, wherein the inlet port, the outlet
port and the housing coaxially extend along a vertical axis of the housing.
45. A gas purge valve according to Claim 33, wherein the outlet port is fitted at a top cap of the housing and where the gas outlet is tamper-proof.
46. A gas purge valve according to Claim 36, wherein the outlet port
30 accommodates the gas flow barrier in the form of a normally closed one-way valve,

which responsive to a pressure exceeding a predetermined magnitude admits liquid flow in a direction from the inlet port towards the outlet.

47. A gas purge valve according to Claim 34, being a liquid through-flow type valve rather than an appendix-type valve.
48. A gas purge valve according to Claim 34, wherein the gas outlet member is formed with a liquid outlet being in flow communication with the outlet port of the valve.
49. A gas purge valve according to Claim 42, wherein the housing comprises at least a pair of gas outlet ports, each bounded by a sealing seat sealingly engageable by a corresponding sealing portion of the sealing member.
50. A gas purge valve according to Claim 49, wherein at least one of the gas outlet ports comprises a first outlet aperture and a second outlet aperture bounded by first and second valve seatings, respectively; and where displacement of the float member from the second position to the first position, progressively detaches the sealing member initially from the first valve seating so as to open initially said first outlet aperture and subsequently from said second valve seating so as to open subsequently said second outlet aperture, whilst buoyant displacement of said float member from said first position to said second position allows for said float member to become sealingly biased against said seatings.
51. A gas purge valve according to Claim 42, wherein the housing is formed with an inlet duct extending intermediate the inlet port and a float receiving space of the housing, whereby flow through said inlet duct is user-interruptible to thereby inactivate the valve and permanently stop liquid flow between the inlet port and the outlet port.
52. A gas purge valve according to Claim 24, wherein the float member and the housing are fitted with mating axial restricting members for limiting displacement of float member within the housing in an axial direction only.